

DRAFT CURRICULUM

IN THE SUBJECT OF

GEOLOGY

**FOR CLASSES
(XI-XII)**

Developed By

Directorate of Curriculum & Teacher Education NWFP,
ABBOTTABAD
April, 2003

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PREFACE

A nation without means of reforms is a nation without means of survival. The best course to make reforms is always remain in education. The Federal Govt of Pakistan feels the need of modifying, revising and making abreast of time the curricula across the levels and subjects (I-XII). Form now in consonance of National Education Policy (1998-2010) already pure sciences, social sciences and languages curricula in two phases i.e 2002 AD and 2001 AD respectively have been designed and developed in collaboration with all 4 Curriculum Bureaux accordingly. This is the 3rd phase - 29 subjects yet 61 level is in operation.

The NWFP Curriculum & Teacher Education Directorate under the auspices of the Secretary School & Literacy Department and certainly in collaboration with Federal Ministry of Education, Curriculum Wing, Islamabad has convened various Provincial Draft Curriculum Development Committees meetings comprising working teachers, Subject Specialists, University/College teachers and Curriculum Developers to prepare the document in selected disciplines as per availability of financial assistance.

The curriculum development has always been remain continuous process. Indeed, to accomplish this titanic task one needs immense commitment, stout vigour and profound professional insight. Special gratitude to Almighty Allah that such head & heart qualities were found among the members of the committees and others engaged in the process.

We don't claim that this work is complete in all respect. However, the Ministry can ameliorate it through the modicum efforts of NCDC. Before going to depart I must like to appreciate to both committee members and all subject specialists plus officials for fulfilling the task despite the snags and limitation.

Umar Farooq
Director
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Introduction

Too often texts in Geology attempt to supply the vast factual background of a subject rather than to develop the reader's ability to deal with a particular class of data. One could teach factual descriptive Geology forever, but with this method the student is likely to know only the specifics he has learned. When, however, principles and processes are isolated and shown at work in real situation, they serve as the key to understanding the dynamic nature of the existing scene.

The difficulty is that the role of principles and processes tends to be obscured by the numerous interactions between man and the earth so that various factors may be seen clearly at work. This make it necessary to study one factor at a time, observing what happens when it varies while the other factors are held constant, since individual in relation to earth are the principal factors in Geology, they are studied as constant and as variables.

This course aims primarily to develop a way of thinking about man's relation to the land, and it is principle and process oriented. Although the main objective is to develop an understanding of how the present situation came about, sufficient earth description is included to give an overall view of the actual earth and the men on it. The course is based on the conviction that an understanding of relatively few under lying principles and processes will enable the student to find meaning in the wide diversity of the earth about him. It is hoped that all concerned will gain from the curriculum the ability to judge and understand the role of earth and its sources in progress of mankind.

Aims & Goals:

To enable the students:

- To increase their knowledge in field of Geology.
- To become useful citizen of the country.
- To discuss the science of Geology with full command.
- To share experiences with others.
- To define crystals.
- To appreciate what is included in curriculum of Geology.
- To comments on crystals, their forms and structure.
- To behave like a mannered students.
- To explain the impact of Geology on the progress of civilization.
- To describe erosion and relation of weathering to erosion.
- To criticise conditions constructively.
- To apply Geological knowledge/information to solution of relevant problems.
- To define movements of the earth crust.
- To discuss the concept of ground water and discharge of ground water into the ocean.
- To participate in classroom discussion session.
- To liven a meaningful and dynamic life.
- Have a regard to the dignity of man and should behave in equality of opportunity for all.
- To elaborate some of the imported geological concepts.
- To draw scientific conclusion from the situation.

COURSE OUT LINE

Geology XI-XII

I. The science of Geology:

- ÷ Definition of Geology.
- ÷ History of Geology.
- ÷ Impact of Geology on the progress of civilization.

II. Crystals:

- ÷ Form and structure of crystals.
- ÷ Atomic theory.
- ÷ X-ray study of crystals.

III. Erosion:

- ÷ Definition of erosion.
- ÷ Relation of weathering to erosion.
- ÷ Processes of erosion on land.

IV. Geologic maps:

- ÷ Four fundamental postulates of Geologic mapping.
- ÷ Geologic sections.
- ÷ Rocks structure and Geologic mapping.

V. Fossils, strata and time:

- ÷ Long and short ranging fossils.
- ÷ Use of fossils in correlation.
- ÷ Geologic time scale.

VI. Movements of the earth crust:

- ÷ Measurable displacement of the earth crust.
- ÷ Warping of the crust.
- ÷ Warping and folding associated with earthquakes.

VII. Ground water:

- ⊕ Ground water movement.
- ⊕ Discharge of ground water into the ocean.
- ⊕ Solution and cementation by ground water.

VIII. Sedimentary rocks and the environment of deposition:

- ⊕ The volume of the sedimentary rocks.
- ⊕ Marine sediments.
- ⊕ Disposition of limestone and dolomite.

IX. Mountains:

- ⊕ Fold mountains.
- ⊕ Volcanic mountains.
- ⊕ Fault-block mountains.

X. Speculations about the origin of earth:

- ⊕ Nebular hypothesis
- ⊕ Origin of atmospheres.
- ⊕ Origin of life.

INSTRUCTIONAL MATERIAL AND TEACHER GUIDE

The need for providing instructional material is obvious. The use of instructional material can make teaching learning activity meaningful. Not only the reading material should reflect desired output but maps, diagrams and pictures have to be provided in accordance with the needs of the subject.

A guide for teacher is also must in order to acquaint them with subject matter and its presentation to the students

In-service Teacher Training:

- ✕ In-service training should also be given attention because the entire burden of making this scheme a complete success lies on teachers. This will enhance their professional competency and they will be able to make their best contribution.

Evaluation:

The marks should be divided as follow:

| | | |
|------------------------|---|------------|
| ✕ Essay test items | = | 45 % Marks |
| ✕ Objective test items | = | 30 % Marks |
| ✕ Practical | = | 25 % Marks |

GUIDE LINE FOR WRITING THE BOOK

- ✕ Pages = up to 200
- ✕ Language = Simple
- ✕ According to the mental level and educational level of the students.
- ✕ The author should keep out door nature of this subject and make provision for field trips.
- ✕ In terms of objectives the book should be balanced.
- ✕ At the end of each chapter exercises may be provided.
- ✕ Relevant pictures, diagrams, maps etc may b included in different part of the book.